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THE 1918 OUTBREAK OF SOD WEBWORMS IN IOWA

R. L. WEBSTER

Early in 1918 reports began to come in to the Iowa Experiment Station of damage to bluegrass pastures by sod webworms. The first reports were from the extreme southwestern part of the state. These records were made either by correspondents, or by two field agents of the federal Bureau of Entomology at that time working under the writer's direction in the state.

Probably the worst infested area was Adair county, in southwest Iowa. While investigating grasshopper damage in this county, July 10, 1918, the writer saw much evidence of the damage by sod webworms, although at this time pastures were regaining their normal green color. Probably damage by these insects in this county exceeded a money value of more than \$400,000.

The Iowa Yearbook of Agriculture for 1916 credited Adair county with 114,788 acres of pasture land. At \$6.00 an acre, which is a fair rental value for this county in 1918, the pasture land for the whole county would be worth \$682,728 for the year. Assuming that all pasture land was damaged to the extent of a 60 per cent loss for the year, there would be a net loss of \$409,632. County Agent C. A. Burge assured me at the time that such an estimate for the injury by sod webworms was quite conservative.

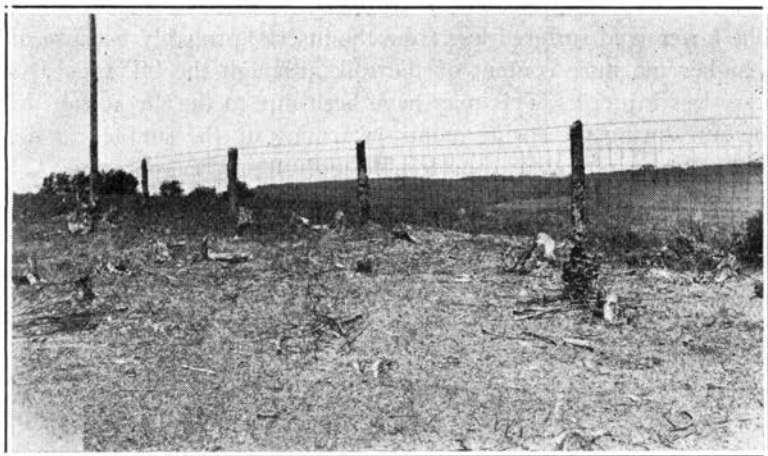


Fig. 1. Bluegrass pasture injured by sod webworms

On June 10, 1918, E. V. Walter, at that time in the federal service, called the writer to Eldora, Iowa, where he had gone to examine several fields badly injured by the sod webworms. The trouble was most severe in an eighty acre bluegrass pasture. This was a piece of cutover land, that had never been under cultivation. Fully 85 per cent of the grass in this field was entirely gone. Figure 1 shows the condition of affairs in this field. On this date the larvae were still common, although the pupae and moths were also abundant.

Usually in the Iowa outbreak the damage was most evident on the brow of the hills. Figure 2 is typical of much of the damage.



Fig. 2. Injury by sod webworms on hillside

The lower land suffered less from the insects, probably because of a higher moisture content of the soil, although the hill tops also were less injured. This may have been due to the direct rays of the sun during the spring months warming up the surface of the soil and also removing considerable moisture by evaporation.

Professor Herbert Osborn recorded a similar outbreak of these sod webworms in Iowa that occurred in 1887. The weather records for that year show a very light rainfall for the spring months, as follows:

	INCHES
March	1.48
April	.81
May	2.07
June	1.87

These records were made at the Des Moines station. The previous year, 1886, also was very dry.

The 1918 records show a similar condition, a low precipitation being recorded, especially for the month of April. The data given herewith are from the Weather Bureau records for Iowa for 1918.

	ATLANTIC		CUMBERLAND		EARLHAM	
	PRECIPITATION	DEPARTURE	PRECIPITATION	DEPARTURE	PRECIPITATION	DEPARTURE
March	0.19	-1.48	0.10	-1.64	0.12	-1.73
April	1.58	-1.35	1.16	-1.11	1.35	-2.11
May	4.93	+0.50	5.27	+1.05	6.44	+1.76
June	2.39	-2.73	4.10	-0.34	4.66	+1.42

It will be noticed that the rainfall for April in both 1887 and in 1918 is below normal. For the stations indicated about three inches of rainfall usually is recorded during April. March, 1918, was abnormally warm and bright. The farming season opened two weeks early. In addition there were in March, and also in May, 1918, higher temperatures than normal. In March these amounted to nine or ten degrees; in May to four or five degrees, according to the stations at which observations were taken.

The outbreaks of 1887 and of 1918 evidently occurred under very similar conditions. There was a deficiency of precipitation, especially in the month of April. Apparently such weather conditions were distinctly favorable to the development of sod webworms, but were decidedly unfavorable to growth in the bluegrass pastures. It seems likely that the insects pushed forward in their development at a more rapid rate than normal, and at the same time the deficiency in rainfall retarded growth in the pastures so much that damage by the insects became severe within a comparatively short time. Doubtless there was, in both years, a greater abundance of the sod webworms than usual, but it is evident that the two outbreaks occurred under essentially similar weather conditions and specifically with a deficiency of rainfall during April.

Specimens of the moths sent to George G. Ainslie, Nashville, Tennessee, included three species of the genus *Crambus*. Twelve moths collected in June and July, 1918, following the period of the worst injury by the larvae, were determined as *Crambus trisectus* Walker. Other specimens collected by E. V. Walter August 9, 1918, at Ames were identified by Mr. Ainslie as *Crambus mutabilis* Clemens and *Crambus praefectellus* Zincken.